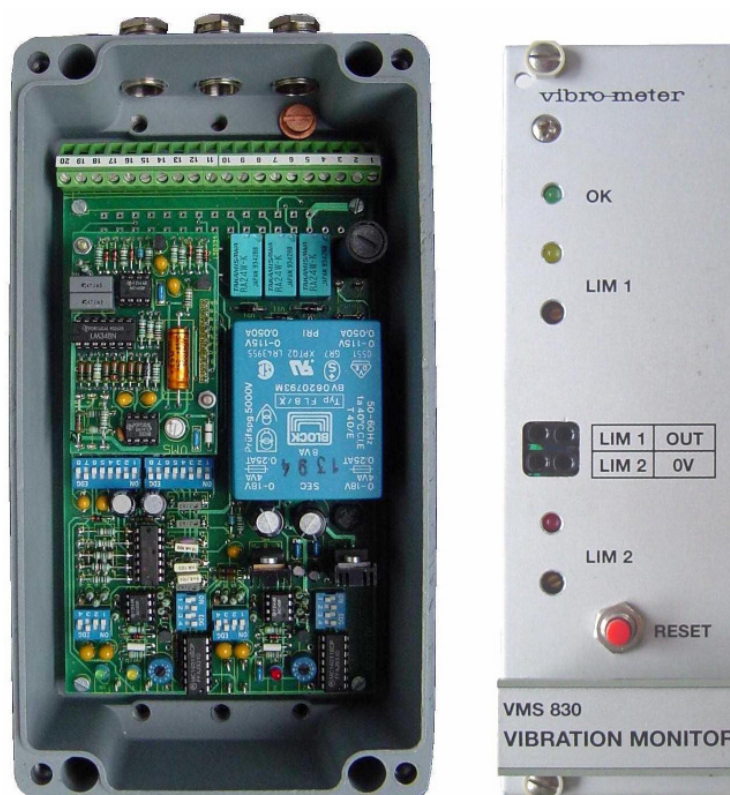




Vibro-Meter GmbH

OPERATING INSTRUCTIONS VIBRATION MONITOR VMS 830

P/N 204-830-000-03



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1.0 Preface

The VIBRATION MONITOR VMS 830 is used for the absolute vibration measurement and monitoring of machines and industrial plants.

The universal electronic structure allows the use of different pickup sensors.

- ❖ Oscillation speed pick-up type CV2..
(pick-up signal in mV/mm/s)
- ❖ Piezoelectric CA..or MTN..pick-up with charge output
(pick-up signal in pC/g)
- ❖ Piezoelectric CE .. pick-up with constant power supply
(pick-up signal in mV/g)
- ❖ Piezoelectric CE .. pick-up with following galvanic separator stage GSI 130
(pick-up signal in μ A/g)
- ❖ Piezoelectric CE .pick-up with following galvanic separator stage GSI 122 for measurements in explosive zone 1
(CE pick-up and galvanic separator stage GSI 122 with ATEX certificate)

If there is a long distance (> 10 m) between pick-up and VIBRATION MONITOR VMS 830, we recommend the use of the oscillation speed pick-up type CV2.. or at distance up to 1000 m type CE ..+ GSI .. . At this type the distance is nearly without influence because of the current modulating routing. Potential differences between pick-up location and electronics are avoided by the galvanic separator stage GSI.

The VIBRATION MONITOR VMS 830 is used with an operating voltage of 115/230V 50/60 Hz. A version with +18...36V_{DC} can be delivered optionally.

The VIBRATION MONITOR VMS 830 is placed in an aluminum case of protection class IP 65. A version as euroboard for the placement in a 19" chassis is also available.

2.0 Function

2.1 Input amplifiers

For the different types of pick-ups an adaption of the input signal and pick-up feeding happens in different input amplifying stages.

2.2 Filters

The output signal of the input amplifying stage is lead through a band pass consisting of a high and low pass filter. The standard filters are designed for an operating range of 10 – 1000 Hz according to VDI 2056 or ISO 2373.

For special application it is possible to bridge the high pass filter, so that measurements from 1 Hz are possible. The low pass filter can be changed to 100 Hz, if necessary. Special filter settings are also possible.

2.3 OK – system pick-up circuit monitoring

The OK-system is for the monitoring of the pick-up circuit. If there is a failure, e.g. by cable break or short-circuit, this monitoring function will be activated. The OK-relay falls and the green LED goes out. At sensors with charging signals pC/g this function is not available.

2.4 Amplifier and integrator

The selection of the value oscillation speed or oscillation distance happens via DIL switch S2.

2.5 Limit values

Two independently adjustable limit value detectors with time delay allow an advance warning and an alarm via correspondingly assigned relays. Via DIL switch there is also the possibility of selecting operating and standby current at the limit value relay, as well as self-holding or not self-holding.

The yellow LED- advance warning and the red LED-alarm show the voltage at the relay.

The respond delay of the limit values is selected via DIL switch in 1, 3, 5 or 10 seconds. The setting of the switch threshold happens via potentiometer P1 for the advance warning and P2 for alarm. Dependent on the version a potentiometer with scale or 10-step trimmer is available. For checking the settings there are the measuring points MP1 and MP2.

2.6 Output signals

For further processing analogue signals 0...+10V or 0/4...+20 mA are available. The assignment is dependent on the variable and the measuring range. By the DIL switch S1 the origin of the current range can be changed from 0 mA to 4 mA. If required, the origin of the output signal can be adjusted with the trimmer P3.

2.7 Reset of the limit values

At the operation type "self-holding" the limit values have to be reset manually via voltage impulse +15...30V. The external connection happens via clamp 18 or 6a.

3.0 Technical data

Power supply:	115/230V _{AC} (-15/+10%) 50/60 HZ +18...36VDC optional	
Pickup:	CV.. oscillation speed pickup CE.. pickup with constant current feeding CA.. pickup with charging output CE.. pickup with current modulating output	[mV/mm/s] [mV/g] [pC/g] [μA/g]
Amplifier:	AC voltage amplifier	
Frequency range:	3Hz ...10kHz	
Filter range:	10Hz bis (100)1000Hz Filter (Butterworth 2 Pol; 20 dB / Oktave)	
Variable:	selectable via DIL switch v => speed mm/s eff s => oscillation distance μmp	
Measuring range:	selectable via DIL switch oscillation speed 2, 5, 10, 20, 50 mm/s eff or or oscillation distance 20, 50, 100, 200, 500 μmp	
DC Output:	0 ... +10V R _{Last} > 10 kOhm or 0/4...+20mA R _{Last} < 500 Ohm (selectable via DIL switch)	
Limit value switch:	2 pieces independently adjustable 10 - 100 % of measurement range (1V to 10V _{DC}) with potentiometers P 1 und P 2	
Time delay:	selectable via DIL switch in 1, 3, 5 or 10 seconds	
Relay load:	250 V _{AC} 4A 100VA 60 V _{DC} 1A 60VA	
Load capacity:	approx. 5VA	

Aluminum case version

Temperature ranges: -20..+70 °C operation
-30..+80 °C storage
humidity max 95%, not condensing

Case: Die casting - aluminum, material GD AL Si 12
Size 220 x 120 x 91 mm (L x W x H)
Colour: RAL 7001
Protection class: IP65

Connection: Cable fittings 3 pieces M16x1,5

Weight: approx 2 kg

Euroboard version

Temperature ranges: 0..+50 °C operation
-20..+70 °C storage

Format: euroboard
Size 160 x 100mm
Width 8 TE (40mm) Front plate

Connection: Male multipoint connector 32-pole DIN 41612 type D

Weight: approx 0.45 kg

4.0 Assembly

Aluminum case version

The device has to be fixed with 4 screws M5. The place of assembly has to be free of vibrations. If the place of assembly is in free-air or dusty/moist environment, this is to be considered at the cable feeding and the closing of the lid.

Eurocard version

The place of assembly has to be free of vibrations. Moisture and dust have to be avoided by all means.

5.0 Commissioning

5.1 Connecting the operating voltage 115V_{AC}, 230 V_{AC} or +18...36V_{DC}

Apply mains voltage 115 or 230 V 50/60 Hz to clamps 1(L) and 2(N), protective conductor to clamp 3 (PE). For better shielding the protective conductor (earth - PE) has always to be connected with the metal case.

Warning!

Check power supply before usage.

Check the solder links 115 or 230 V.

Check for the right polarity at version +18...36V_{DC}.

Operating voltage +18...36V_{DC}

Clamp 1: +18...36VDC

Clamp 2: 0V

Clampe 3: earth - PE!

This device has a dispoling protection

5.2 Connecting the pickups CV 211

5.2.1 CV .. pickup with signal (mV/mm/s)

Clamp 16	(+) Signal	Colour – brown
Clamp 17	(-) Signal	Colour – black
Clamp 19	Shield (0V)	Colour – blue

5.2.2 CE .. pickup with constant current supply (mV/g)

Clamp 16	(+) Signal 0.5 to 4mA constant current
Clamp 17	(-) Signal
Clamp 19	Shield (0V)

5.2.3 CE .. pickup with current output ($\mu\text{A/g}$) with galv. Separator stage GSI.. (mV/g)

Clamp 16 (+) Signal mV/g
Clamp 17 0V
Clamp 20 +24V_{DC} Feeding GSI

5.2.4 CA .. pickup with charging output (pC/g)

Clamp 16 (+) Signal
Clamp 17 0V Shield
Clamp 19 (-) Signal

Warning!

Be sure that the shielding of the measurement cable happens exactly according to the installation diagram. The cable shield of the measurement cable is to be put only one-sided. Non-observance can lead to beats (unstable display) and failures of the measurement signal. The cable from the sensor head to VMS 830 is to be fixed, cable oscillations can lead to failures.

The place where the sensor is mounted has to be earthed!

5.3 Setting the limit values

	Measuring point	Poti	Time delay 1, 3, 5, 10s
Relay K1	MP 1	P 1	DIL switch S 3
Relay K2	MP 2	P 2	DIL switch S 5

Example:

Set limit value relay K1 to 60 % with potentiometer P1 at measuring point MP1 6V_{DC} (100% = 10V_{DC})

6.0 Factory settings of the DIL switches

ON (Ein) Off (Aus)

S1 – 1*	high pass filter 10 Hz		
S1 – 2*	4.. 20 mA		
S1 – 3	0.. 20 mA		
S1 – 4	0.. 2 mm/s eff		
S1 – 5	0.. 5 mm/s eff		
S1 – 6	0.. 10 mm/s eff		
S1 – 7*	0.. 20 mm/s eff		
S1 – 8	0.. 50 mm/s eff		
S2 – 1	0.. 20 μ m		
S2 – 2	0.. 50 μ m		
S2 – 3	0..100 μ m		
S2 – 4	0..200 μ m		
S2 – 5	0..500 μ m		
S2 – 6	oscillation distance (μ m)		
S2 – 7*	oscillation speed (mm/s eff)		
S2 – 8	Linearization 1 .. 1000 Hz (only at CV 211)		
Limit value 1	60% = 6VDC*		
S3 – 1	1 seconds		
S3 – 2	3 seconds		
S3 – 3*	5 seconds		
S3 – 4	10 seconds		
S4 – 1	self-holding		
S4 – 2*	not self-holding		

ON (Ein) Off (Aus)

Limit value 2	80% = 8VDC*		
S5 – 1	1 seconds		
S5 – 2	3 seconds		
S5 – 3*	5 seconds		
S5 – 4	10 seconds		
S6 – 1	self-holding		
S6 – 2*	not self-holding		
S6 – 3*	standby current	NE (fail safe)	
S6 – 4	operating current	NDE	
Low pass filter	100 Hz		
Low pass filter *	1000 Hz		
Auxiliary supply	+18...36V _{DC}		
Auxiliary supply	115 V _{AC}		
Auxiliary supply	230 V _{AC}		

Warning!

Always select S1 – 1 or S2 – 8

High pass filter 10 Hz or linearization 1.. 1000 Hz (only CV 211)

Always select S2 – 6 + S1 – 8 or S2 – 7

Oscillation distance or oscillation speed

Analog output 0 – 10 V

*** = standard factory setting**

Customer:

Project:

VM order number:

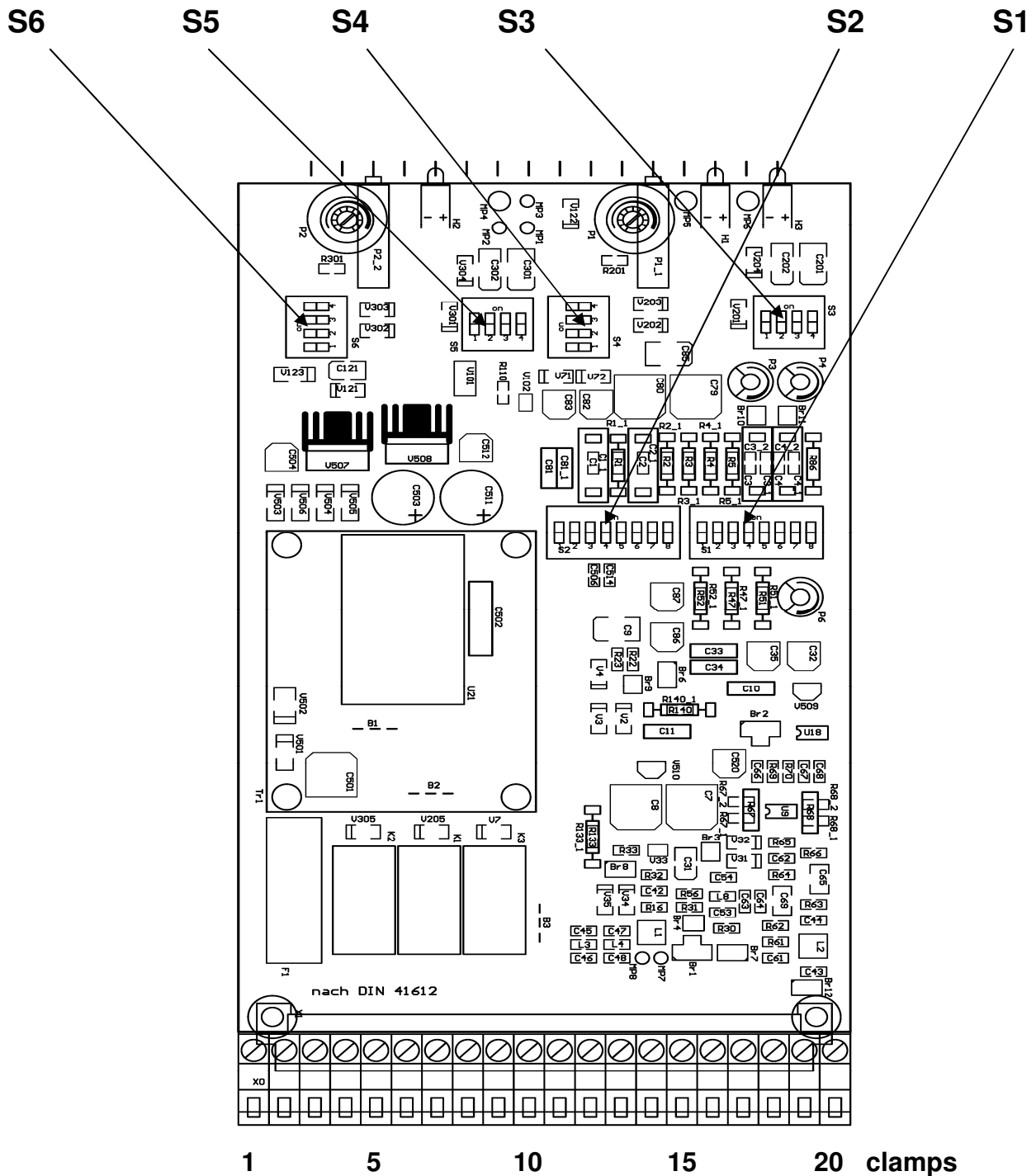
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Serial number S/N :

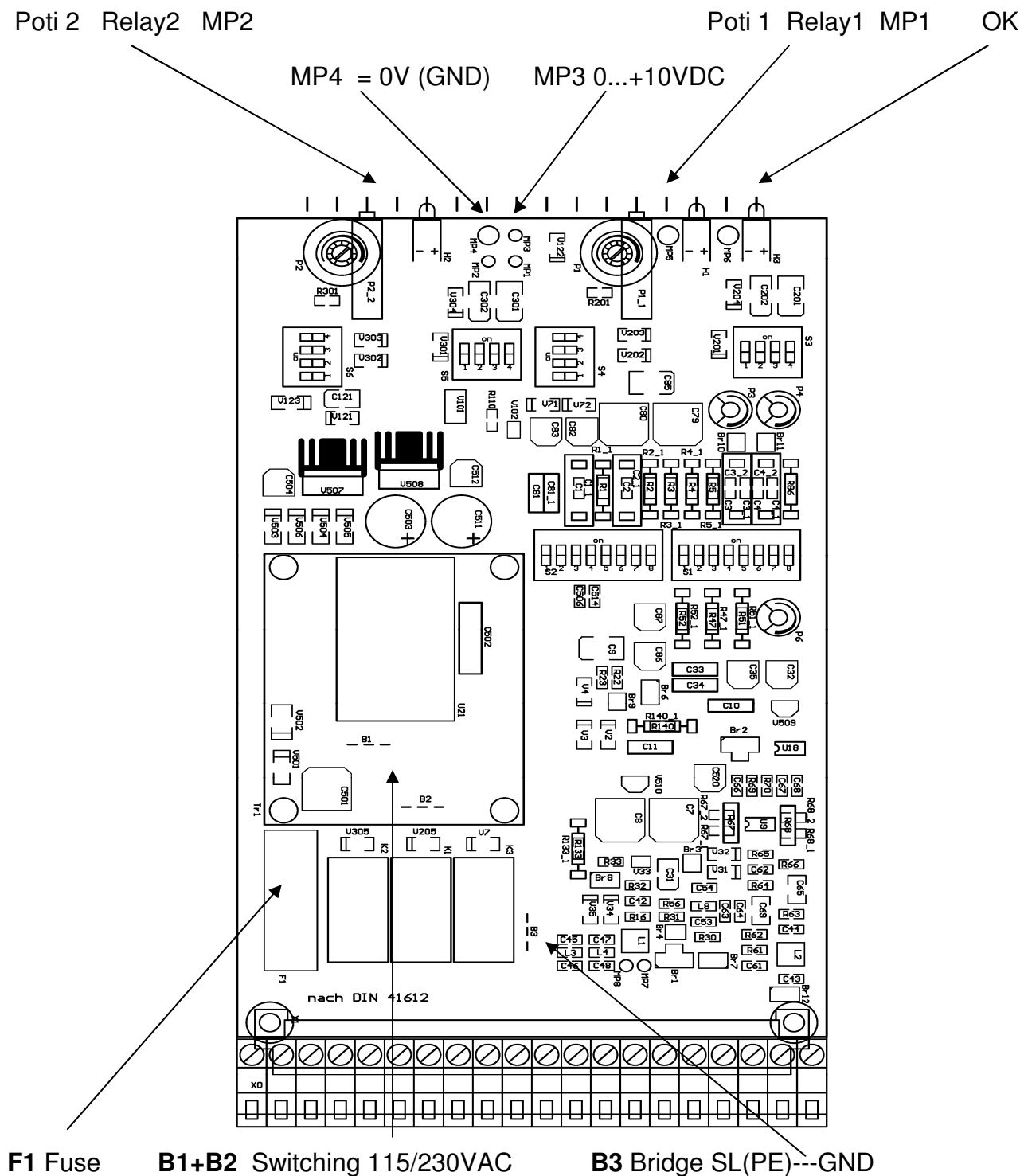
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Date:

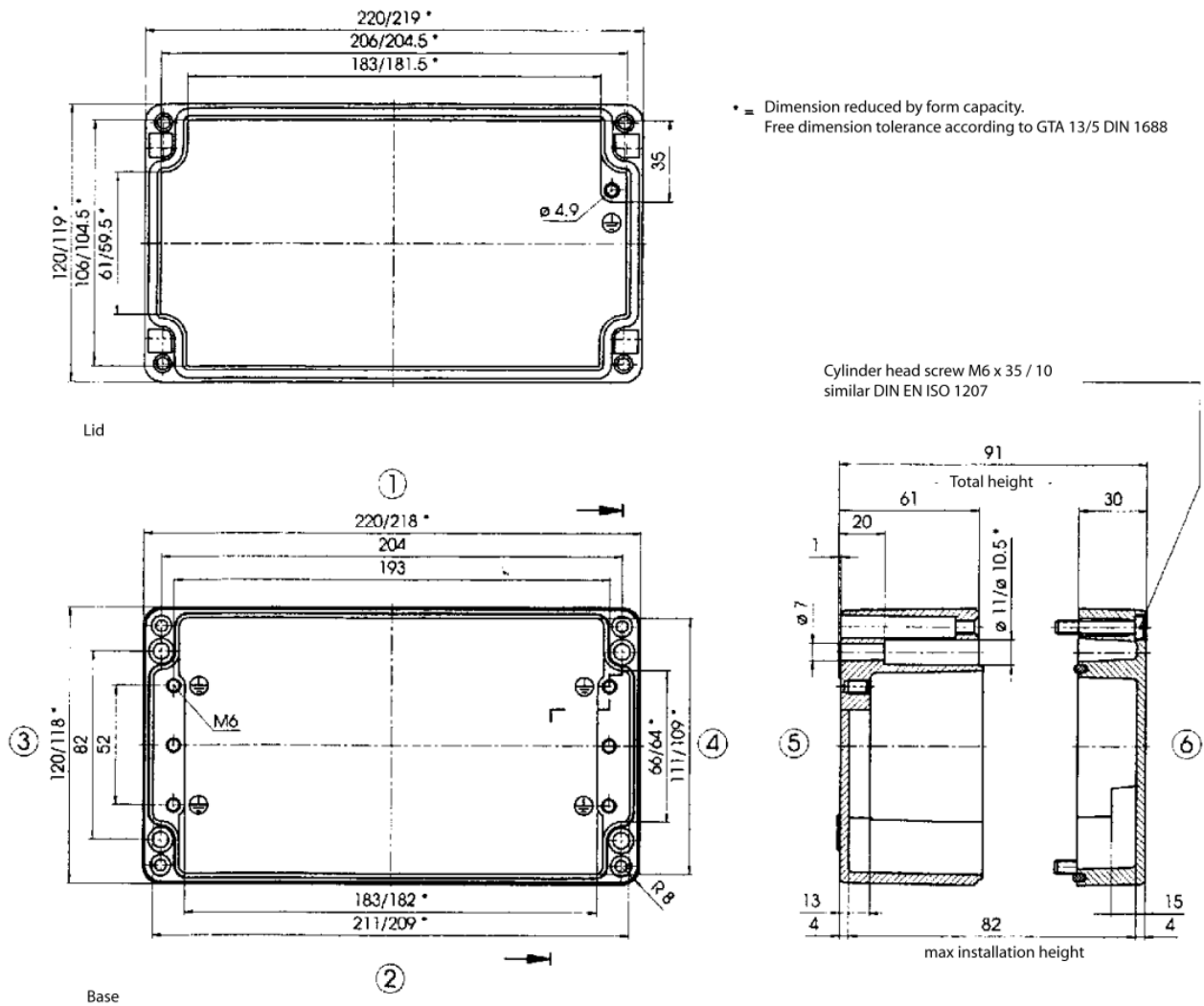
7.0 Position plan 830 301



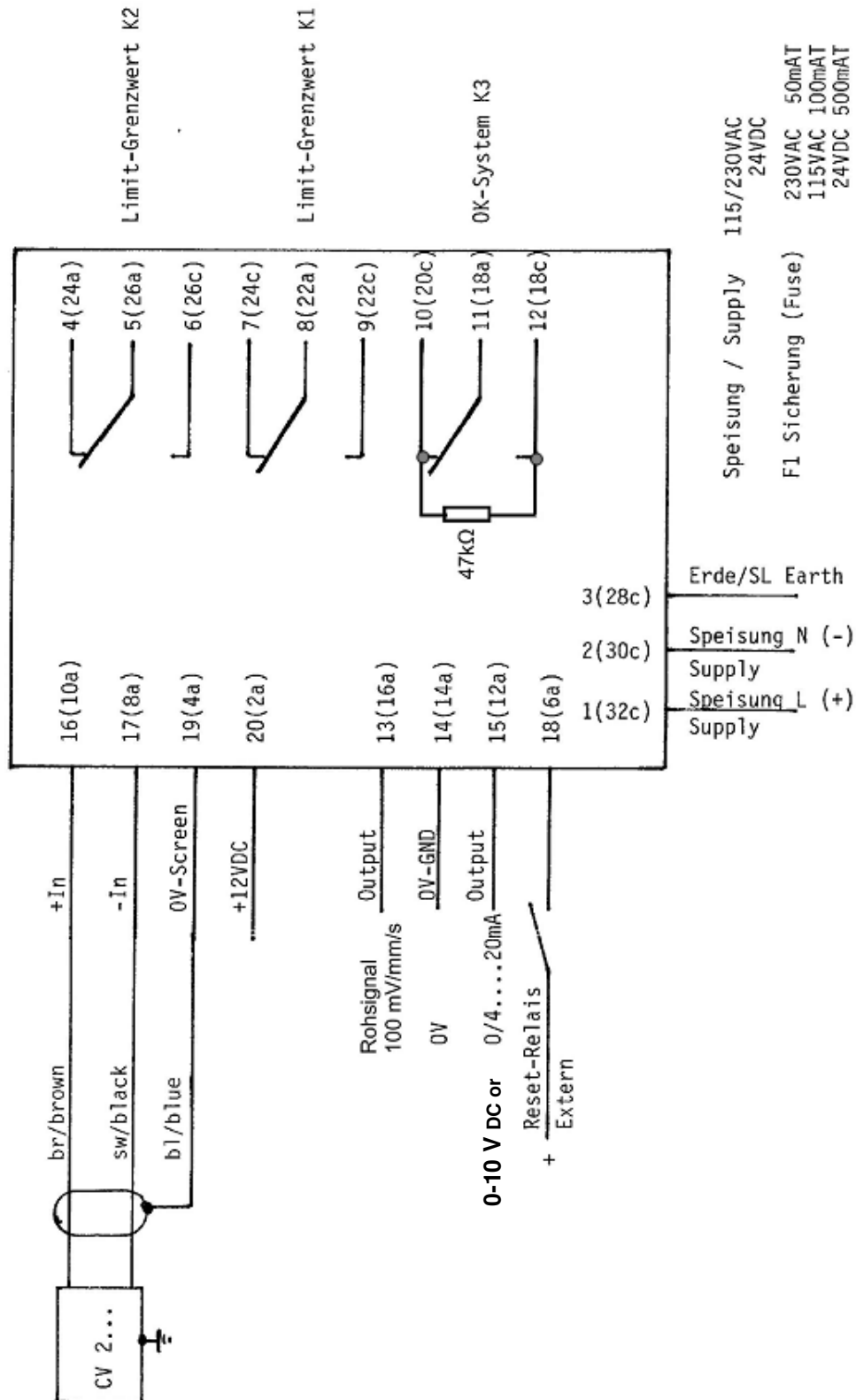
8.0 Position plan 830 302



9.0 Dimension diagram aluminum case 830 303

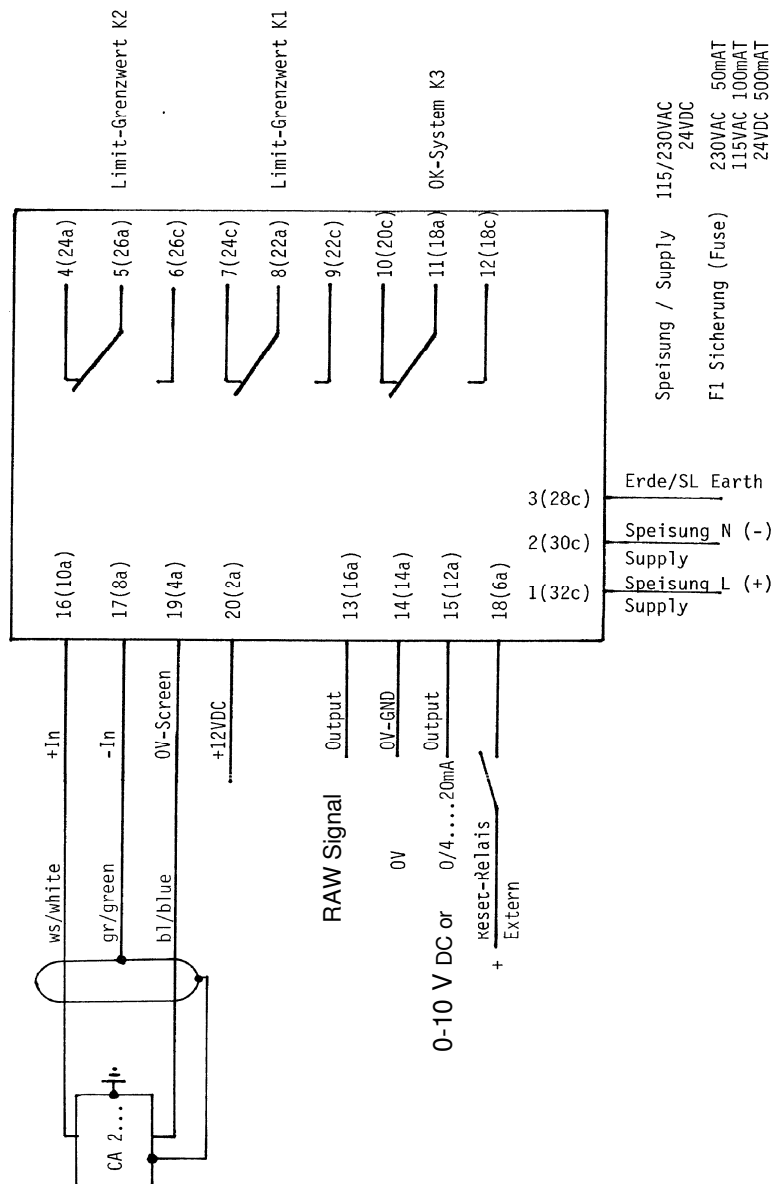


10.0 Connection diagram VMS 830 – CV211 830 304

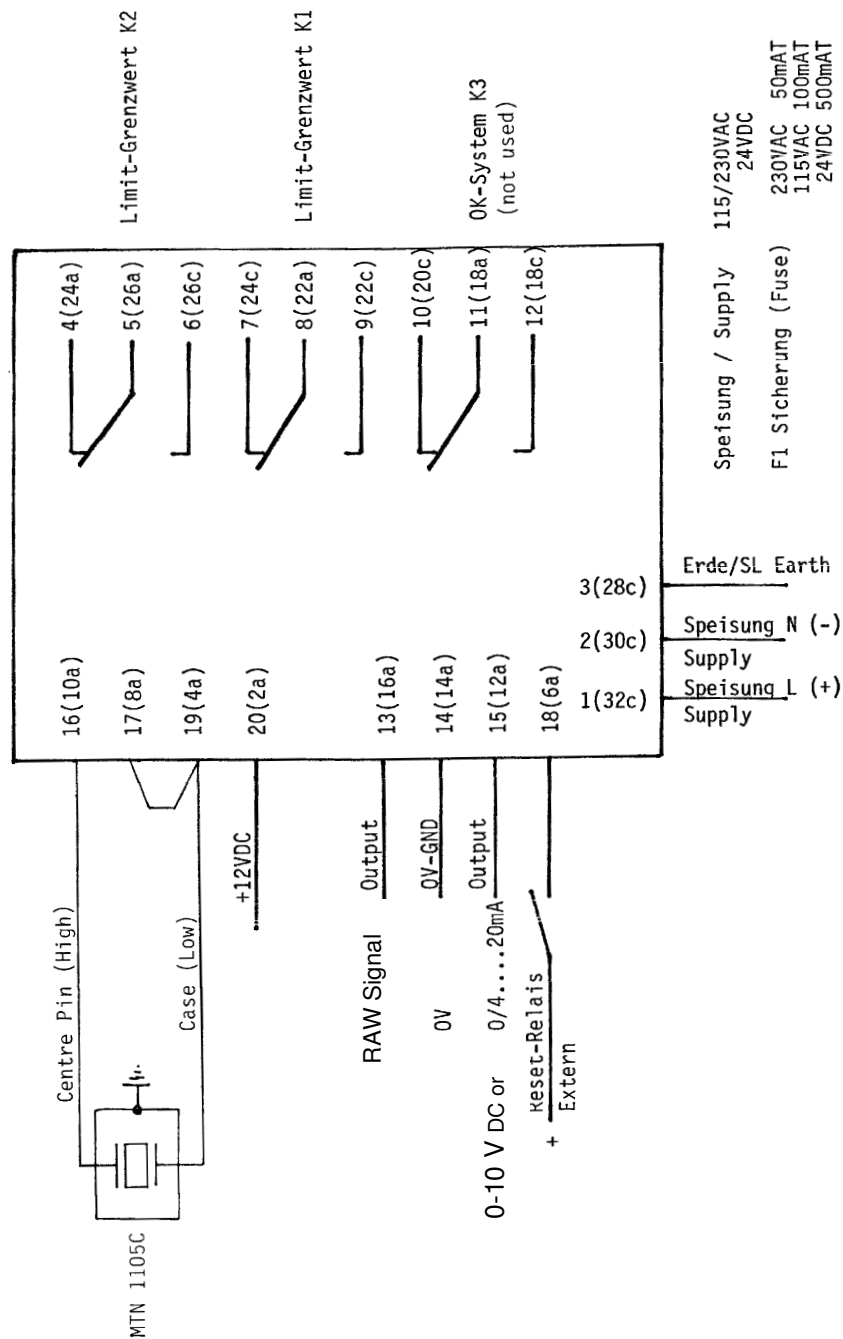


11.0 Connection diagram VMS 830 – CA201

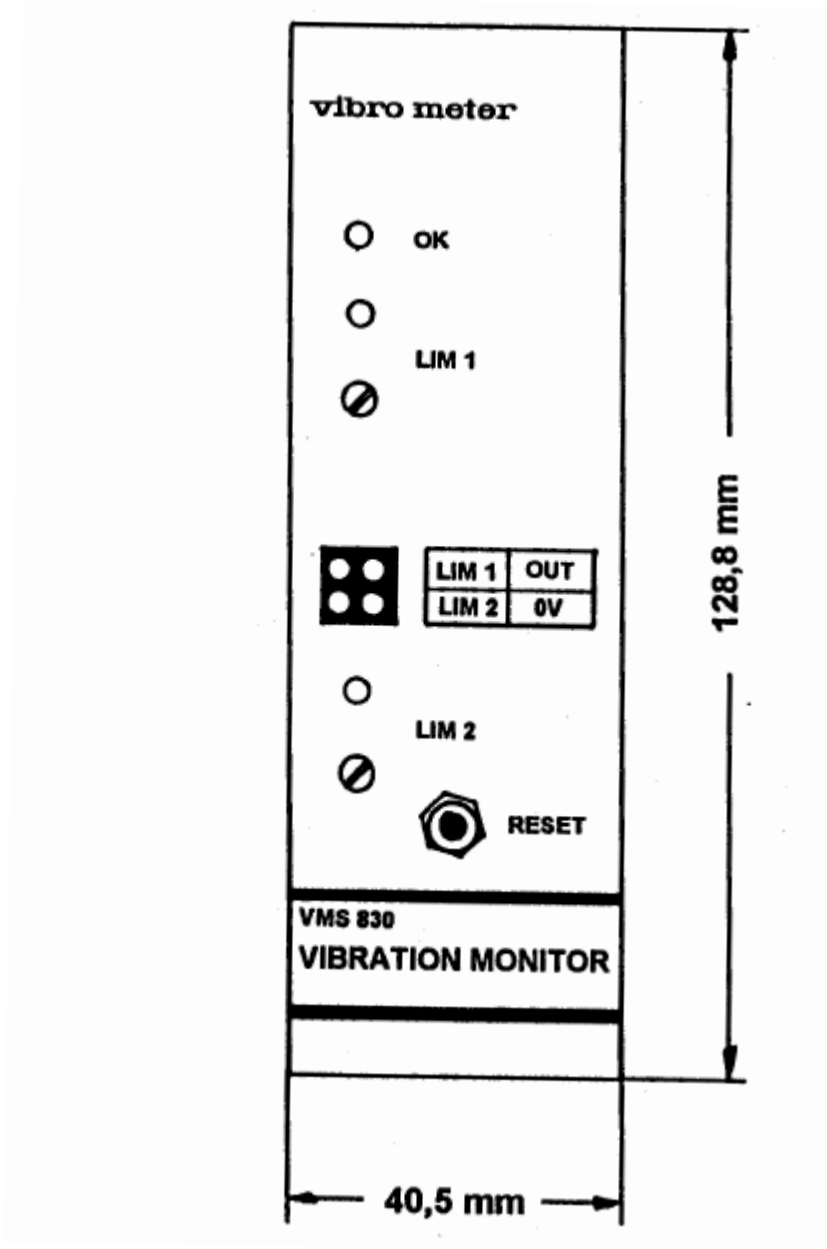
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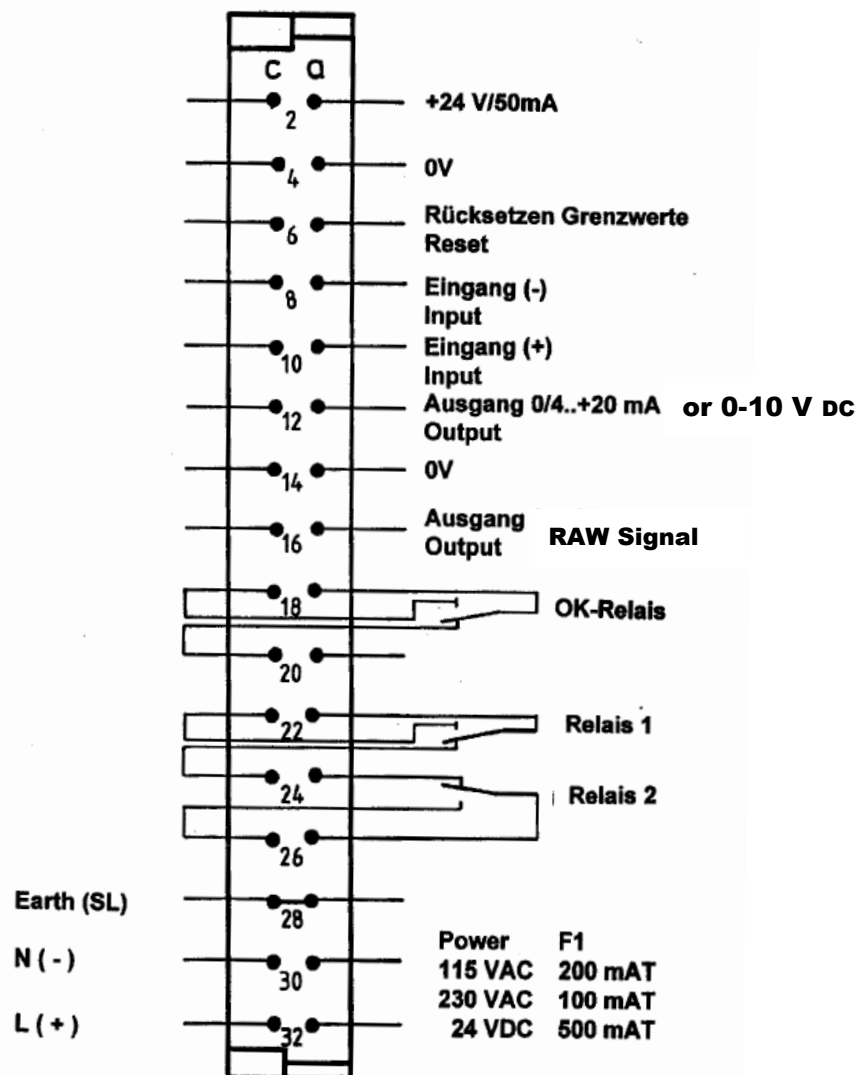
12.0 Connection diagram VMS 830 – MTN1105C 830 306



13.0 Version 19“ Card 830 307



14.0 Connection diagram 32-pole multipoint connector 830 808



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